

A marked-up version of the existing claim 10 showing the changes incorporated in the amended claim is attached on a separate sheet.

Please add the following new claim 11.

11. A catalyst suitable for the hydroalkylation of an aromatic hydrocarbon comprising
- c) a crystalline inorganic oxide material having a X-ray diffraction pattern including the following d-spacing maxima 12.4 ± 0.25 , 6.9 ± 0.15 , 3.57 ± 0.07 and 3.42 ± 0.07 ;
 - (a) ruthenium; and
 - (b) tin.

REMARKS

It is respectfully submitted that the above Amendment places the case in order for allowance or in better condition for consideration on appeal. Entry of the Amendment and reconsideration of this application, as amended, are therefore respectfully requested.

By virtue of the present Amendment, claim 10 is to be limited to a hydroalkylation catalyst comprising MCM-22, ruthenium and tin, which catalyst is specifically exemplified in Example 8 of the application. In addition, a new claim 11 is to be added which corresponds to the amended claim 10 but defines the crystalline inorganic oxide in terms of the X-ray pattern disclosed on page 3, lines 15-19. Following the Amendment, claims 7-11 are pending in this application.

Claims 7-10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tsao (U.S. Patent No. 5,384,296). In particular, the Examiner argues that Tsao discloses a catalyst comprising a zeolite, such as MCM-22, containing a Group VIII metal, such as ruthenium, and a second metal, such as zinc, cobalt or nickel. This rejection is respectfully traversed.

Dealing firstly with the rejection of claim 7, it is noted that, although Tsao discloses a zeolite-containing catalyst, MCM-22 is only one of nineteen zeolites listed as being equally useful in the catalyst of Tsao. Similarly, although Tsao discloses the use of ruthenium as the Group VIII metal component, ruthenium is only one of six Group VIII metals specifically listed by Tsao and is not among the three metals said to be preferred, namely platinum, rhodium and iridium. Finally, although Tsao discloses zinc, cobalt and nickel as suitable promoters, Tsao lists five other promoters not recited in claim 7 and also envisages catalysts without non-noble metal promoters. Thus, the Tsao disclosure envisages literally thousands of combinations of zeolites with Group VIII metals and optionally non-noble metal promoters. Moreover, of this myriad of possible combinations, the only catalyst specifically exemplified in Tsao is zeolite beta containing platinum without a non-noble metal promoter.

There is absolutely no disclosure in Tsao to direct the skilled worker to select the particular combination of zeolite, Group VIII metal and metal promoter claimed in claim 7. In contrast, it is well known that a reference "must clearly and unequivocally disclose the claimed compound or direct those skilled in the art to the compound without any need for picking, choosing and combining various disclosures not directly related to each other by the teachings of the cited reference", *In re Arkley*, 455 F.2d 586, 172 U.S.P.Q. 524 (CCPA 1972). Moreover, it has been held that "for a prior publication to be sufficient to defeat a patent it must exhibit a substantial representation of the invention in such full, clear and exact terms that one skilled in the art may make, construct and practice the invention without having to depend on either the patent or his own inventive skills", *Philips Electronic & Pharmaceutical Industries Corp., v. Thermal & Electronics Industries Inc.*, 450 F.2d 1164, 171 U.S.P.Q. 641 (2d Cir. 1971). Similarly, there can be no anticipation "where one skilled in the art would have to choose judiciously from a genus of possible combinations", *In re Sivaramakrishnan*, 213 USPQ 441 (CCPA 1979). It is respectfully submitted that Tsao fails to provide the skilled worker the clear and unequivocal disclosure to pick the zeolite, Group VIII metal and metal promoter required

to arrive at the catalyst of claim 7 and hence it is believed that Tsao fails to constitute an anticipation within the meaning of 35 U.S.C. § 102(b).

With regard to claim 10, as amended this claim is directed to a catalyst containing MCM-22, ruthenium and tin. There is no disclosure or suggestion in Tsao of the use of a tin promoter and hence it is believed that the rejection of claim 10 based on Tsao has now been rendered moot. Similarly, since claim 11 is limited to a catalyst containing ruthenium and tin, it is submitted that this claim is also clearly distinguished from the disclosure in Tsao.

Claims 7-10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Del Rossi et al (U.S. Patent No. 5,108,969). In particular, the Examiner argues that Del Rossi et al disclose a catalyst comprising MCM-22 having a Group VIII metal and tin thereon. The Examiner concedes that Del Rossi et al fail to disclose ruthenium as the Group VIII metal, but citing *Ex Parte A*, 17 USPQ2d 1716 (Bd Pat. App. & Inter. 1990) and *In re Schauman*, 572 F.2d 312, 197 USPQ 5 (CCPA 1978), argues that the "teachings of the reference are drawn to a class of metals sufficiently limited to constitute anticipation" and that "one of ordinary skill would have been able to at once envision ruthenium as a Group VIII metal taught by the reference". This rejection is respectfully traversed.

It is a basic tenet of patent law that to "anticipate a claim, a single source must contain all of the elements of the claim", *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (Fed. Cir. 1986) and that "missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference", *Structural Rubber Products Co. V. Park Rubber Co.*, 749 F.2d 707, 23 USPQ 1264 (Fed. Cir. 1984). Where a reference discloses less than all of the claimed elements, an Examiner may only rely on 35 U.S.C. § 103, *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed Cir. 1985). Contrary to the suggestion in the Office Action, *Ex Parte A* and *In re Schauman*, do not rewrite these decisions and allow a reference to anticipate without disclosing all the elements of a claim. Thus, in both *Ex Parte A* and *In*

re Schauman, the cited reference disclosed a generic chemical formula and a list of substituents sufficient to arrive at the claimed chemical compound. This is completely different from the present case where Del Rossi et al discloses the genus of Group VIII metals but completely fails to disclose or suggest the claimed metal ruthenium. Moreover, the Examiner's argument is not supported by *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971) since the cited passage from that case concerned a rejection under 35 U.S.C. § 103, after the Board of Appeals had specifically reversed the rejections under 35 U.S.C. § 102. The Examiner is therefore respectfully requested to reconsider the rejection of claims 7-10 based on Del Rossi et al.

Since the new claim 11 requires the presence of ruthenium, it is submitted that this claim is distinguished from Del Rossi et al for the reasons advanced above in relation to claims 7-10.

In view of the foregoing comments, Applicants respectfully submit that the Examiner's rejections under 35 U.S.C. § 102(b) should be withdrawn. Moreover, Applicant's direct the Examiner's attention to the arguments submitted in the response mailed March 19, 2001 regarding the unexpected advantages of the claimed catalyst in aromatics hydroalkylation to refute any possible objection under 35 U.S.C. § 103.

The Examiner also refers to Huang (U.S. Patent No. 5,705,729) as disclosing a catalyst composition containing a zeolite such as MCM-22, MCM-36, MCM-49 and MCM-56 and one or more hydrogenating components. Huang is not specifically cited against the claims of the present application but, to be fully responsive, Applicants would point out that Huang discloses a catalyst where MCM-22, MCM-36, MCM-49 and MCM-56 are merely examples of a number of suitable zeolites and, more importantly, although a list of combinations of hydrogenation metals is disclosed, none of combinations includes ruthenium. It is therefore submitted that claims 7-11 are clearly distinguished from the disclosure in Huang.



Entry of this Amendment and early allowance of this application is requested.

Respectfully submitted,

By

A handwritten signature in dark ink, appearing to be "P. W. Roberts", written over a horizontal line.

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Peter W. Roberts



VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The following changes are being made to claim 10:

10 (Twice Amended). A catalyst suitable for the hydroalkylation of an aromatic hydrocarbon comprising

- (a) MCM-22 zeolite;
- (b) ruthenium; and
- (c) tin [or zinc].

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